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Perspectives of Unsuccessful Air Traffic Control Specialists

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Approximately one-quarter of air traffic controller trainees fail field training at their first facility assignment. In some cases, those who fail the training qualifications at their first air traffic control facility assignment are allowed to transfer to a less complex facility. We surveyed a sample of these controllers to identify their perceptions of work-related and external factors that contributed to their failure and subsequent request for reassignment. For example, although these controllers were selected to work at their first facility, in part, based on their aptitude for the job, some said they simply could not do the work at the level that was required. Others indicated that factors such as facility culture or training methods used by on-the-job training instructors might have contributed to their failure. This research is a first step in understanding why controllers fail training.

The Federal Aviation Administration (FAA) employs approximately 14,500 air traffic control specialists (ATCSs). These ATCSs, referred to as controllers, work at en route and terminal air traffic control (ATC) facilities across the United States. Applicants for ATCS vacancies must meet test criteria that have a demonstrated relationship with achieving certification as an ATCS. The vast majority of applicants do not meet these criteria. Those relatively few applicants meeting the criteria and subsequently hired by the FAA as trainees, also called developmental controllers, will be in training for the first one to three years of their employment. Most will attend training at the FAA Academy before undergoing site-specific training at an ATC facility. However, some developmental controllers with prior experience as civilian or military controllers may bypass the Academy and begin field qualification training at their first assigned facility immediately after hiring.

Field qualification training for developmental controllers includes a combination of classroom instruction, computer-based instruction, simulated exercises, and on-the-job training (FAA, 2013a). If successful in all stages of field qualification training, the developmental controllers become certified professional controllers (CPCs). Most often, developmental controllers who fail field qualification training are terminated from employment. However, in some cases, field-training failures may request reassignment to a lower volume and less complex ATC facility. If reassignment is requested, the training history of the developmental controller is reviewed by the National Employee Services Team (NEST), a team within the FAA's Air Traffic Organization, and a determination is made to retain or terminate the employee. Training failures from either an en route or terminal facility may request transfer but they are usually allowed only to transfer into lower-level terminal facilities (FAA, 2013b).

Training failures are costly, whether the developmental controller leaves the FAA or is reassigned to a lower level ATC facility. On average, the cost to train one developmental controller for one year is about $180,000 (FAA, 2014). Our research objective is to determine why developmental controllers fail field qualification training at their first facility. Are unsuccessful developmental controllers simply unable to control air traffic, despite demonstrating the aptitude for ATC during the selection process and, in most cases, succeeding at the FAA Academy? Are there factors other than ability that contribute to failure in ATC field qualification training? If other factors are involved, what are they? Are these factors internal to the FAA such as the culture of the facility or perhaps the training policies or practices of the on-the-job instructors or are these factors external in nature, related to family issues or facility location?

This research project is a first attempt to understand the factors that contribute to training failures from the perspective of unsuccessful developmental controllers, specifically those who request and are allowed to transfer to lower-level ATC facilities. While these developmental controllers may be biased or have a limited understanding of some of the factors involved, understanding their perspective is a useful first step in considering strategies to reduce training failures.

Method

Participants

The 100 developmental controllers who volunteered to participate in this study were solicited from among all developmental controllers sent to the FAA Academy from February 2014 through January 2015 for training after failing field qualification training at their first facility and prior to beginning training at their second facility. Initially, we did not collect demographic data (e.g., age, gender, or race or national origin (RNO)) to encourage participation by ensuring anonymity. We added demographic questions to our survey approximately half way through data collection after determining that participants were willing to provide the information. The average age of the 42 participants reporting was 31.32 (*SD* = 3.17). There were 35 males and 7 females in our sample, and their RNO was reported as follows: 31 White; 4 Hispanic; 4 Black; 2 Asian or Pacific Islander; and 1 American Indian or Alaskan Native.

Materials and Procedure

Researchers at the FAA's Civil Aerospace Medical Institute (CAMI) created the Controller Transfer Questionnaire (CTQ) for use in this research. While the FAA encourages completion of an on-line exit survey for those who leave the agency or federal service (including retirement), there is nothing similar for use with ATCSs who fail training at their first facility but are allowed to transfer to a lower level ATC facility. In addition, the FAA's exit survey does not cover the factors thought to contribute to training failure, the subject of this research.

The CTQ has 46 questions divided into the following sections: entry, reassignment, training, performance, culture, and feedback. In each section, participants were asked questions regarding their perceptions of factors that had contributed to their failure in training and subsequent request for reassignment. They were also asked how satisfied they were with each type of training, their opinion about the best and worst parts of training, and how they would improve training. We used a variety of question response formats in developing the CTQ. The most predominant type of question uses a Likert response format, with responses ranging from one to seven on a defined scale (e.g., agreement, satisfaction, and difficulty). A secondary type of question required respondents to mark all applicable items. For example, one question asked respondents to identify what they liked best about being a controller and provided several response options like salary, benefits, prestige, or the challenge of the work. We used these response formats to minimize the number of open-ended questions on the CTQ, thereby facilitating response consistency and supporting data analysis. Each question formatted in this way included an *Others* item to allow for responses not listed as options. The CTQ was slightly modified after analyzing data collected from the first 58 participants. The modifications, based on frequent responses to the *Others* item, were used to increase the number of response options provided for selected items. We analyzed a subset of CTQ items specifically related to participants' perceptions of job factors that contributed to their failure.

Results

Work-Related Factors

Work-related factors seen as contributing to requests for reassignment are shown in Table 1. Of the 100 participants, 83 selected at least one response on this question, and 22 of the 83 selected more than one response. Work-related factors selected most often as contributing to requests for reassignment were *Could not do the work* and *Did not like the facility*. Most of the reasons listed in the *Others* category explained item responses selected or mentioned external factors that were not work-related, and are addressed in another section of the survey.

Table 1.
Work-Related Factors.

Were there work-related reasons for requesting reassignment? (Mark all that apply)

Response Options	Frequency
Could not do the work	24
Did not like the work	8
Did not like work hours/schedules/shiftwork	1
Did not like my co-workers	13
Did not like my trainer(s)/instructors(s)	8
Did not like my managers	7
Did not like the facility	18
Others (Please list below)	48

Note. Data are based on the number of respondents selecting a particular response.

Could Not Do the Work. In the comments under *Others*, one participant selecting *Could not do the work* said, "Level 12 radar work was above my capabilities." However, another participant, also selecting *Could not do the work* said "I still think I can do EnRoute, but I didn't pass the skill checks for some reason. Just as they let me go, I really started to get the hang of it." The latter comment is consistent with responses made by many survey participants on other survey questions related to perceptions of training performance (see Table 2). Whether selecting or not selecting *Could not do the work*, most participants thought they could have certified as a controller if they had stayed in training at their first facility or moved to a different facility of the same type. They also thought they were progressing well in training. Although, as shown in Table 2, those selecting *Could not do the work* for all three items scored significantly lower than those who had not selected *Could not do the work* as a work-related factor in requesting reassignment.

Table 2.
Individual Perceptions of Training Performance

Question 1 Definitely Not to 7 Definitely Yes	*Could not do the work*		
	Selected	Not Selected	Significance of the Difference
Do you think you could have certified as a controller if you had stayed at your facility?	M = 5.33, SD =1.17 (N = 24)	M = 5.96, SD = 1.48 (N = 74)	$t'(48.88) = -2.13$, $p = .01$
Do you think you could have certified as a controller at a different	M = 5.79, SD =1.06 (N = 24)	M = 6.55, SD = .83 (N = 74)	$t'(32.60) = -3.21$, $p = .003$

facility of the same type?			
Did you feel you were progressing well in training at your facility?	M = 4.26, SD = 1.54 (N = 23)	M = 5.19, SD = 1.44 (N = 75)	t'(34.57) = 2.57, p = .01

Did Not Like the Facility. A participant selecting *Did not like the facility* said "I felt poorly treated. The work was antiquated and done in a way that I felt was beneath me or any smart person." Another participant who had also selected *Did not like the facility* said, "Most people in the center are miserable and angry. The ones that try and help get ignored." Eight of the 18 participants selecting *Did not like the facility* also selected *Did not like my co-workers*. The perceived culture of the facility may have contributed to participants not liking the facility. Of the 84 participants responding to a question on their perception of the facility culture, slightly more participants rated the culture as being unsupportive/apathetic or hostile than friendly or competitive (27 selected more than one response). Very few participants said their facility culture was supportive (see Table 3). Of the 18 participants who selected *Did not like the facility* as a reason for requesting reassignment, only one choose *Supportive* as the predominant organizational culture at their facility. Most (14 of 18) said the facility culture was either *Unsupportive/apathetic* or *Hostile*.

Table 3.
Facility Culture

What was the predominant organizational culture at your facility? (Mark all that apply)

Response Options	Frequency
Friendly	20
Competitive	22
Supportive	9
Unsupportive/apathetic	25
Hostile	30
Others (Please list below)	36

Note. Data are based on the number of respondents selecting a particular response.

Did Not Like My Trainer(s)/Instructor(s). Although only eight participants selected the item response *Did not like my trainer(s)/instructor(s)* most participants thought the training process needed to be improved. On the item *Do you believe that the training process needs to be improved?* the average response for all participants was 6.20 (SD = 1.31) on a scale from 1 (Definitely Not) to 7 (Definitely Yes). Thirty of the 71 recommendations made by the participants for improving training methods specifically mentioned facility trainers or on-the-job training instructors. Sample comments were:

> "Trainers must be better trained in how to teach. In what way specifically I cannot say for sure, but the ability to do a job is absolutely not the sole requirement for being an effective teacher of that job."
> "Trainers have to love to train people, it is voluntary work. But it seems that they just love the extra income, and feel the power to ridicule the non-CPCs."
> "Find CPC's who want to train. Don't have trainees change trainers. Stick with one or two trainers who want to train. Most CPC's don't want to train and adopt bad attitudes with the trainee until he/she fires them for someone else."
> "I believe that controllers who really want to train are those who should train and go to an OJTI class (extensive class). Training and being a new hire is already stressful enough; training process should be a team effort (whole crew)."
> "Have people that want to train, train. A lot of OJTIs didn't want to train."

"Do a better job selecting trainers, not everyone is capable of being a good trainer."

External Factors

External factors seen as contributing to the participants' request for reassignment are shown in Table 4. Of the 100 participants, 53 selected a response on this question, and 16 of the 53 selected more than one response. Family, location, and cost of living were selected most often. *Other* reasons listed were primarily to explain item responses or were work-related, not external factors. An explanation of an external circumstance reported by several participants was their own health or health of a family member.

Table 4.
External Factors.

Were there external circumstance that drove your request for reassignment? (Mark all that apply)

Response Options	Frequency
Family	24
Childcare	5
Spouse	4
Cost of Living	11
Housing	3
Schools	3
Location	13
Commute	5
Others (Please list below)	23

Note. Data are based on the number of respondents selecting a particular response.

Discussion

The FAA categorizes developmental controllers transferring from higher-level to lower-level facilities as training failures (FAA, 2011). As mentioned previously, training failures are costly to the FAA. In a recent study by Pierce, Broach, Byrne, and Beckley (2014), the failure rate for developmental controllers who started field qualification training from 2007 to 2011 and completed training by June 2014 was 26.3%. The percentage of training failures varied greatly by type of ATC facility, ranging from 15% at tower only facilities to 45% at terminal radar approach control (TRACON) facilities. Training failures are also costly to the developmental controller. While difficult to quantify the emotional costs, we know that developmental controllers often leave employment in other occupations when selected for ATC training that they may or may not be able to return to, if they fail training as a controller. They often also must move to duty stations far from their current residence. Thus, to reduce costs to both the FAA and the developmental controller, strategies to decrease training failures are needed.

Our goal was to understand what developmental controllers who had failed training, but been allowed to transfer to a lower-volume and less-complex ATC facility, thought contributed to their failure to succeed at their first facility. Identifying contributing factors could potentially lead to the development of strategies or interventions to decrease the likelihood that developmental controllers would fail training at their first facility.

Based on the data collected thus far, it would seem important to examine issues related to organizational culture. Is the ATC environment hostile toward developmental controllers? What kind of

support do developmental controllers need to manage family matters during this time of transition? It also seems that some strategy may be needed to support and improve the performance of on-the-job training instructors. Should all CPCs be allowed to be on-the-job training instructors? Should there be some way of assessing the effectiveness of on-the-job training instructors? How should they be trained and what is the best strategy for matching developmental controllers with on-the-job training instructors?

These and other questions will be addressed in follow-on research. We plan to continue administering the CTQ to developmental controllers allowed to transfer to lower level ATC facilities after failing at a first facility and to counter a limitation inherent in this project by extending our data collection to include others involved in the training process. For example, the perspective of (a) successful developmental controllers, (b) developmental controllers who failed and were terminated, (c) OJTIs, and (d) other facility training personnel should be gathered to broaden our understanding. In addition, we plan to supplement the survey-based data with additional analyses, based on more quantitative, performance-based data. For example, assessing the extent to which developmental controllers who are allowed to transfer are successful in training at their second facility might indicate a need for a succession plan in which developmental controllers enter at less complex facilities and move to more complex ones after reaching CPC. In addition, identifying facilities with relatively high training failures may allow for a targeted approach to data collection and implementation of interventions. The research reported in this paper represents the first step in a multi-year, multi-method approach to decrease field training failure rates of air traffic controllers.

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